



Predicting User Satisfaction and Performance Impact of AI-Generated Visuals in Instruction with a Hybrid SEM-ANN Approach

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Why Visuals?



“A picture is worth
a thousand words.”

Human perception
and colour and
shape

Visuals enhance
user experience
and
comprehension

Images are
remembered
better than text

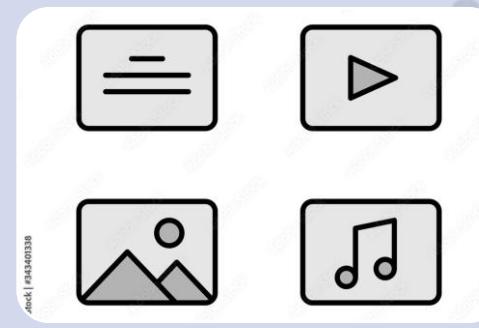
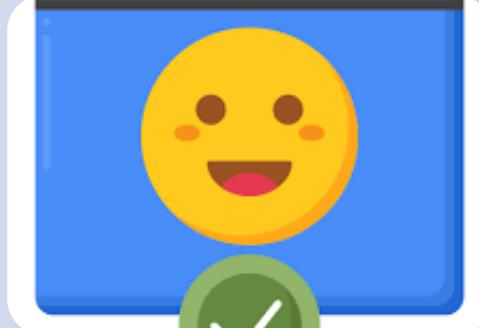
Today's Text intensive syllabus



Textbooks (as opposed to picture books, so to speak)



AI contribution



Efficiency

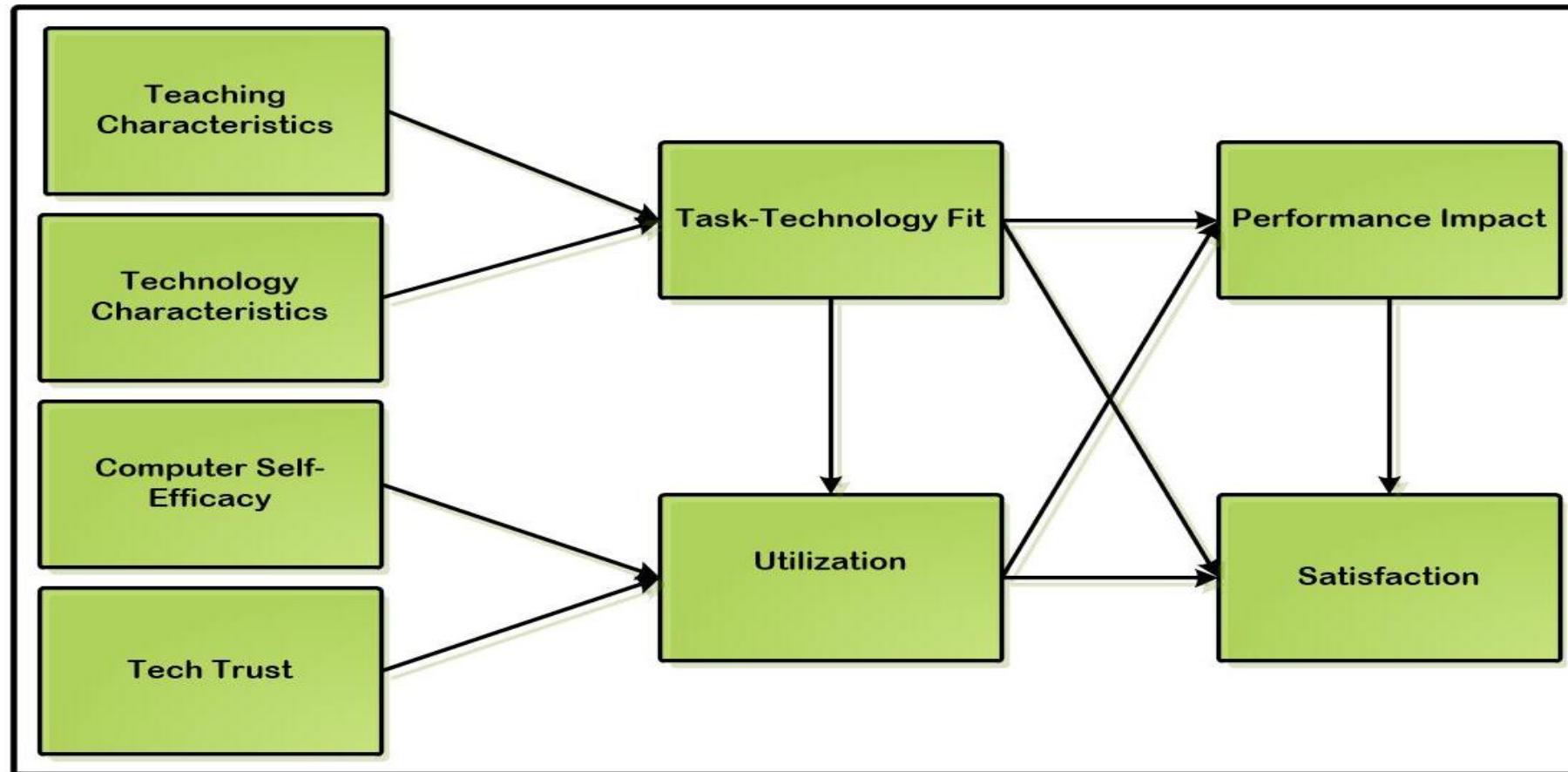
User-friendly way
to produce
visual
materials

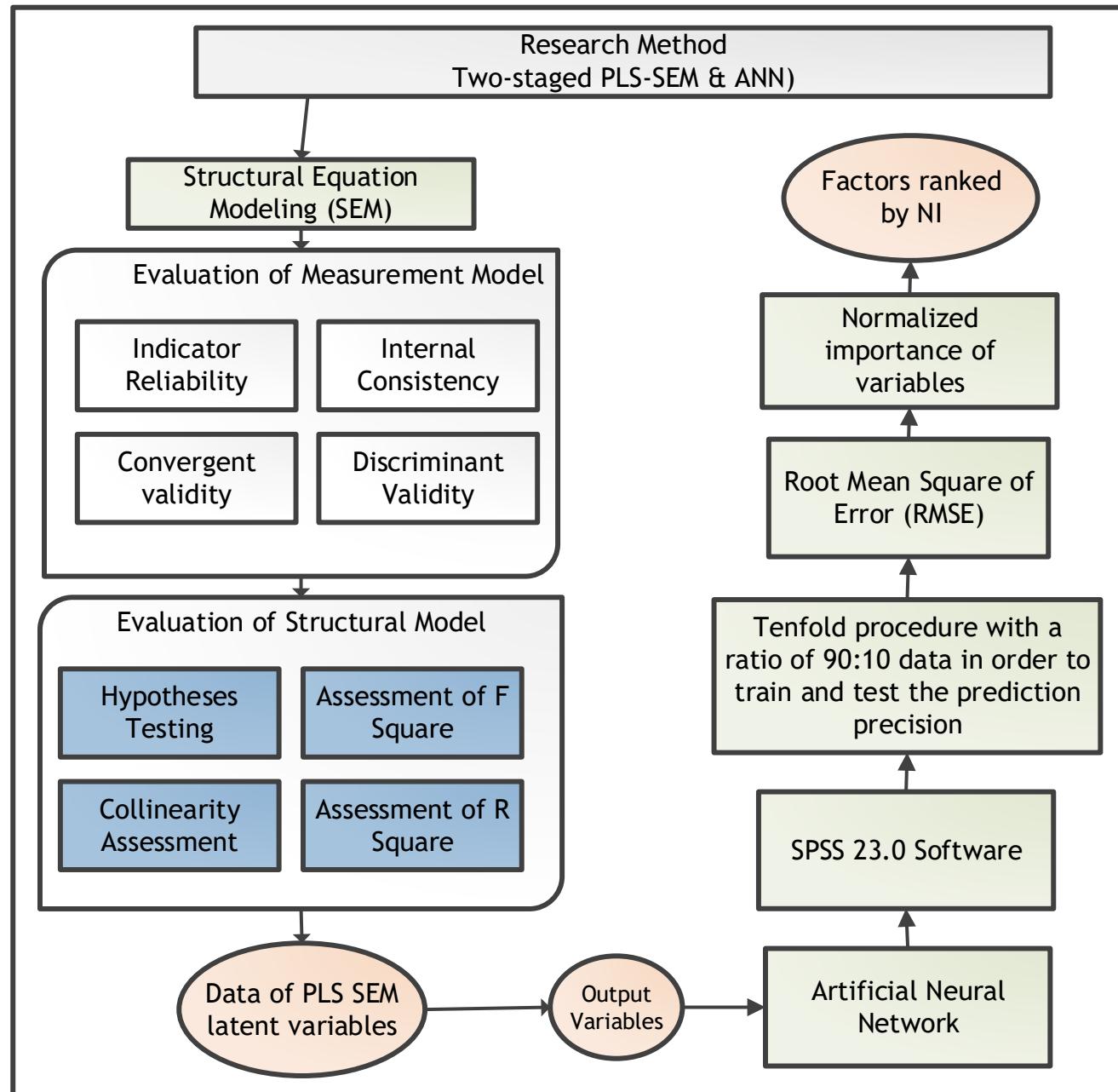
Personalized
Learning

Various
types of
contents



The Proposed Model







Hypotheses Testing

	VIF	β	T statistics	P values
CSE → UT	1.486	0.253	4.198	0.000
IMPT → SAT	1.579	0.124	1.751	0.040
TT → UT	2.035	0.343	4.479	0.000
TTF → IMPT	1.519	0.340	4.040	0.000
TTF → SAT	1.701	0.480	6.800	0.000
TTF → UT	2.301	0.200	2.648	0.004
Task → TTF	1.623	0.232	3.330	0.000
Tech → TTF	1.623	0.430	6.383	0.000
UT → IMPT	1.519	0.340	4.525	0.000
UT → SAT	1.702	0.198	3.219	0.001

Sensitivity Analysis



Variables	Average importance	Normalized Importance (%)	Ranking
TT	1	100.00	1
Tech	1	99.77	2
UT	1	99.64	3
TTF	0.95	95.18	4
UT	0.92	91.72	5
CSE	0.73	73.44	6
Task	0.69	68.52	7
TTF	0.62	61.95	8
TTF	0.57	56.72	9
IMPT	0.4	39.90	10



Conclusion

- AI as a reality that can't be ignored
- The role of policy makers
- The role of educators educational institutions

This work coincides with recent EAC AI Alliance during the East African Community Conference



Figure 2. Figure 1. H.E. President Hassan Sheikh Mohamud, President of Somalia, officially inaugurating the EAC AI Alliance during the East African Community Conference (EACON 2025). Adapted with permission from SIMAD University, the organizer of the conference



timeshighereducation.com/sub-saharan-africa-university-rankings

THE Times Higher Education

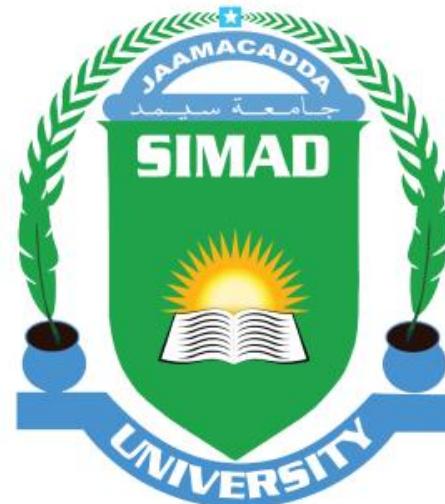
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		UGHE – University of Global Health Equity	74.9	75.8	36.8-42.7	97.4	92.5	79.2	158
4		Rwanda							
5		University of Ghana	74.3	61.3	75.2	79.6	79.7	78.8	65,730
6		Rwanda	73.3	75.4	61.5	78.0	89.5	72.1	31,506
7		SIMAD University Somalia	71.3	79.1	68.8	85.2	92.8	34.8-42.6	3,844





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